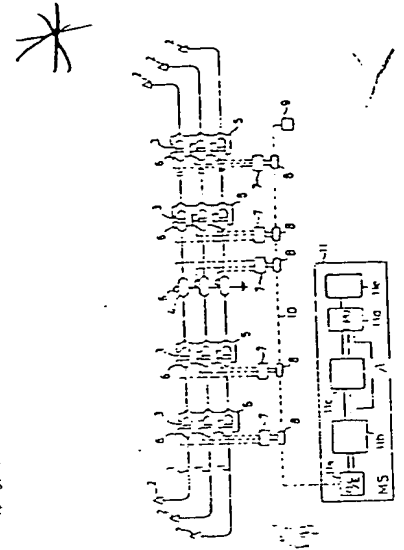


(54) ACCIDENT-POINT LOCATING METHOD OF POWER CABLE
 (11) 5-297052 (A) (43) 12.11.1993 (19) JP
 (21) Appl. No. 4-101296 (22) 21.4.1992
 (71) FURUKAWA ELECTRIC CO LTD:THE (72) SHOJI TOMIOKA(3)
 (51) Int. Cl⁸. G01R31/08

PURPOSE: To provide an accident-point locating method wherein an accident point can be oriented by means of a simple system which uses at least one optical fiber as a transmission line transmitting the detection signal of an accident and the mounting position of a sensor is restricted comparatively little.

CONSTITUTION: When a dielectric breakdown accident is caused at power cables 1 or their connection parts 3, 4, a large acoustic signal is generated. Sensors 6 detect the acoustic signal and give it to optical modulation means 7, 8. The optical modulation means 7, 8 modulate an optical signal propagated on an optical fiber 10 by means of output signals from the sensors 6. The optical signal on the optical fiber 10 is given to a judgment means 11; the accident point of the power cables is oriented. Since it is sufficient to lay at least one optical fiber along the power cables 10, a system can be constituted simply. When the arrival time difference of the sound signal up to the sensors 6 is utilized, it is possible to find the distance up to the accident point from the sensors 6.

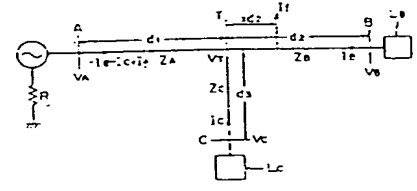


A: address signal, 11b: amplifier - demodulation, comparator, 11c: display of judged result

(54) TROUBLE-POINT LOCATION METHOD OF GROUND FAULT
 (11) 5-297053 (A) (43) 12.11.1993 (19) JP
 (21) Appl. No. 4-106639 (22) 24.4.1992
 (71) NISSIN ELECTRIC CO LTD (72) YASUHIRO YAMAMOTO(1)
 (51) Int. Cl⁸. G01R31/08

PURPOSE: To judge in which branch a trouble point after a branch point is situated, to specify the trouble point and to perform the search operation of the trouble point by means of small efforts by a method wherein information on a power-supply end and on two receiving ends is used.

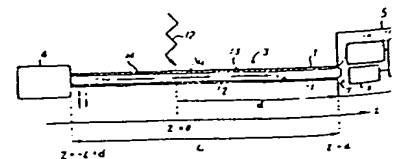
CONSTITUTION: The distance from a power supply end A in a resistance-grounded system three-terminal single-circuit transmission line up to a trouble point is calculated. When the calculated distance exceeds the distance from said power supply end A up to a circuit branch point T, values of formulae $V_{TB} = V_B - Z_{B1}I_B$ and $V_{TC} = V_C - Z_{C1}I_C$ are calculated respectively by use the following: voltages V_B, V_C at a trouble phase at other ends B, C; electric currents I_B, I_C at the trouble phase; a positive-phase impedance Z_B at a circuit in a section TB; and a positive-phase impedance Z_C at a circuit in a section TC. When the value V_{TR} is smaller than the value V_{TC} , it is judged that the trouble point is situated in the section TB. When the value V_{TC} is smaller than the value V_{TR} , it is judged that the trouble point is situated in the section TC. The trouble point is located in the judged section.



(54) METHOD AND APPARATUS FOR DETECTING POSITION OF LIGHTNING STRIKE
 (11) 5-297054 (A) (43) 12.11.1993 (19) JP
 (21) Appl. No. 4-126840 (22) 20.4.1992
 (71) FURUKAWA ELECTRIC CO LTD:THE (72) OSAMU ASO(1)
 (51) Int. Cl⁸. G01R31/08; G02B6/00

PURPOSE: To detect a thunderbolt fall position by making use of an optical composite overhead ground wire.

CONSTITUTION: When a thunderbolt 12 is caused in an optical composite overhead ground wire 3, lightning electricity which is propagated through a conductor wire 1 is detected by means of an electricity detection part 6 at a reception-side terminal station 5. The rotation-change of the polarization plane due to the thunderbolt of an optical signal which is transmitted to the side of the terminal station 5 from a terminal station 4 through an optical fiber 2 is passed through an analyzer 7 and then detected by means of a power meter 8. An operation part 11 detects the time of the thunderbolt by means of the detection signal of the electricity detection part 6; it detects the rotation time of the polarization plane by means of a signal from the power meter 8; it detects a distance (d) from the terminal station 5 up to a thunderbolt position on the



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